

Date: Monday, 10/22/2007 3:40:25 PM
 User: Kim Johnston

Process Sheet

50

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: 350/355 AS X-TUBE AFT UNDER REVIEW
Job Number	: 35276		
Estimate Number	: 12486		
P.O. Number	:	Part Number	: D350748201
This Issue	: 10/22/2007 S.O. No. :	Drawing Number	: N/A UNDER REVIEW
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: 1 / Type : LANDING GEAR	Drawing Revision	: N/A
Previous Run	: 32162	Material	:
Written By	:	Due Date	: 12/15/2007 Qty: 1 Um: Each
Checked & Approved By	: <u>10/23</u>		
Comment	: Est Rev: A New Issue 06-07-05 JLM Est Rev: B Update qty of MS21042L5 06-09-12 KJ		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
---------	-----------------------	---------------

1.0	DC	DOCUMENT CONTROL
-----	----	------------------



Comment: Photocopy bluefile & type labels per PPPD350-748-201	CHG001
---	--------

2.0	35276A	X-TUBE AS 350/355 HI AFT UNDER REVIEW
-----	--------	---------------------------------------



Comment: Sub-Component X-TUBE AS 350/355 HI AFT
D350-748-241 B <u>35276A</u>

3.0	PACKAGING 1	PACKAGING RESOURCE #1
-----	-------------	-----------------------



Comment: PACKAGING RESOURCE #1
Pick Packing Kit

4.0	D35001	350 SADDLE
-----	--------	------------



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)
350 SADDLE
Batch: <u>32203</u>

5.0	D35011	BUSHING
-----	--------	---------



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)
BUSHING
Batch: <u>35782</u>

10/23/10 (1)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 10/22/2007 3:40:25 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE AFT UNDER REVIEW

Job Number: 35276

Part Number: D350748201

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

AN46A

Bolt



Comment: Qty.: 16.0000 Each(s)/Unit Total : 16.0000 Each(s)
Bolt
Batch: M105810

7.0

AN441A

bolt



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)
bolt
Batch: M105940

8.0

AN532A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)
Bolt
Batch: M105408

9.0

AN960JD416

Washer



Comment: Qty.: 32.0000 Each(s)/Unit Total : 32.0000 Each(s)
Washer
Batch: M106277

10.0

AN960JD516

Washer



Comment: Qty.: 8.0000 Each(s)/Unit Total : 8.0000 Each(s)
Washer
Batch: M106654

11.0

MS21042L4

Nut



Comment: Qty.: 24.0000 Each(s)/Unit Total : 24.0000 Each(s)
Nut
Batch: M105938

12.0

MS21042L5

Nut



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)
Nut
Batch: M106277

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA: D Date: 08/03/14
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 10/22/2007 3:40:25 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 350/355 AS X-TUBE AFT UNDER REVIEW

Job Number: 35276

Part Number: D350748201

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

8/03/12 (1)

14.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-748-201

Location: _____

PPP Rev: _____

A

8/3/12 SP

(1/2)

15.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

10/03/14

Job Completion



2008/3/13 (1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 10/22/2007 3:40:33 PM
 User: Kian Johnston

Process Sheet

50

Customer : CU-DAR001 Dart Helicopters Services Drawing Name : X-TUBE AS 350/355 HI AFT UNDER REVIEW
 Job Number : 35276A
 Estimate Number : 12483
 P.O. Number :
 This Issue : 10/22/2007 S.O. No. :
 Prsht Rev. : NC
 First Issue : / / Type : LANDING GEAR
 Previous Run : 32162A
 Written By :
 Checked & Approved By : 0710.23
 Comment : Est Rev: A New Issue 06-07-05 JLM
 Est Rev: B Update cadplate process 06-09-12 KJ

Part Number : D350748241
 Drawing Number : D350-748-241
 Project Number : N/A
 Drawing Revision :
 Material :
 Due Date : 12/15/2007 Qty: 1 Um: Each

Rev. D 07.10.23

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 DC DOCUMENT CONTROL



Comment: DOCUMENT CONTROL

Photocopy bluefile and create labels as per PPP D350-748-241 CHG001

NA

2.0 D6018125 Crosstube Material



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Crosstube Material

D6018-125

2.299" OD X 2.000" ID

Batch: 2747412

SF 07/11/04

3.0 MORI SEIKI MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs on both ends as per Folio FA647

2-Turn first side as per Folio FA647

3-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D350-748-241.

SF 07/20/04

4.0 QC1 INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

SF 07/20/04

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA: 12 Date: 09/03/14
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
07.12.20	13	Xtube width after bending was 40.625"/40.97" One side re-bent to 40.78" TO EVEN-UP DIMS.	CP 07.12.20 pur QSI 042	PART acceptable.	N/A	<u>1060306</u>	CP 07.12.20 pur QSI 042	<u>080306</u>

NOTE: Date & initial all entries

Date: Monday, 10/22/2007 3:40:33 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT UNDER REVIEW

Job Number: 35276A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description:

5.0

MORI SEIKI

MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA647

2-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D350-748-241.

3-Scribe part # as per Dwg D350-748-241

8F 07/11/04

6.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

8F 07/11/04

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

J.F. 07/11/05

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1
Remove all Machining Marks

SL 7-11-7 JD 7-11-12

9.0

OUTSIDE SERV.10

OUTSIDE SERVICES -LG



Comment: Sub-Contracting OUTSIDE SERVICES

Issue P/O: 5031

CL 07/11/13 ①

Heat Treat to min 180 KSI As per Dwg D350-748-241

Sand Blast tube after Heat Treat

Possible Supplier: Vac Aero

Ensure Certificate of Conformity is attached

10.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure certificate of conformity is attached

7/12/11 50 (X)

11.0

QC6

DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

6/12/12 (X)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 10/22/2007 3:40:33 PM
User: Kim Johnston

Process Sheet

Customer: SCU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT UNDER REVIEW

Job Number: 35276A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description:

12.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

-Oil inside of tube with LPS-3.

A/R LPS-3 Batch: _____

NIA

13.0

BENDING

BENDING MACHINE



Comment: BENDING MACHINE

Bend tube as per Dwg D350-748-241 using CNC bender program D350A and Folio FT _____ 12 7-12-18

14.0

QC15

DIMENSIONAL CHECK OF X-TUBES



Comment: DIMENSIONAL CHECK OF X-TUBES

UP 67.12.20

15.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Remove all marks from tube within limits of D350-748-241

2-Drill Tube as per Dwg D350-748-241 Using DT8876 Drill Jigs,
Set-up drill table as per QSI 010

3-Deburr

4-Engrave Part # and Batch # as per Dwg D350-748-241

SR 8-1-2
SR 8-1-18

(P10) →

16.0

QC6

DIMENSIONAL CHECK



Comment: DIMENSIONAL CHECK

508/01/0202

17.0

OUTSIDE SERV.10

OUTSIDE SERVICES -LG



Comment: Sub-Contracting OUTSIDE SERVICES

Issue P/O: SS10

Stress relief at 375° for 5 hours

Magnetic Particle Inspect per ASTM E1444

Cadium Plate per AMS-QQ-P-416B, Class 1, Type 2

Embrittle relief at 375° for 8 hours, Chromate Treat

Possible Supplier: Southwest United Industries

Ensure Certificate of Conformity is attached

C208/01/230

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D350-748041 PAR #: NA Fault Category: Prod / Landing Gear NCR: Yes No DQA: D Date: 08/03/14
QA: N/C Closed: NA Date: 08/03/14

NCR: <u>35276A</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
08/01/21	15.0	employee pulled the wrong cross tube. and Drilled the holes on the center to 0.332.	QP 08.01.21 pr Q51042	Drill out hole to 0.332". Acceptable this are fine only.	EL 8-1-21	08/01/21	QP 08.01.21 pr Q51042	08/01/21
		He thought it was one of the tubes that was drilled off alignment. Hemman error						
08/01/21	15.	hole location on cells are .750" instead of max .700 R.C. Hemman employees	QP 08.01.22 pr Q51042	Grind max size of . Cupl at to get a Dim of 0.700.	flwm 8-1-23	08/01/22	QP 08.01.22 pr Q51042	08/01/22

NOTE: Date & initial all entries

Date: Monday, 10/22/2007 3:40:33 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT UNDER REVIEW

Job Number: 35276A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

18.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Receive & Inspect For Transit Damage

Ensure certificate of conformity is attached

12/3/4 (1)

19.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

5 08/03/04 (1)

20.0

SPRAY PAINTING

SPRAY PAINTING



Comment: SPRAY PAINTING

1-Prime inside crosstube as per QSI 005 4.2 RT 08-03-05

2-Paint Outside of Tube as per Dart QSI 005 4.2

RT 08-07-05

21.0

QC14

INSPECT SPRAY PAINT



Comment: Inspect Spray Paint

Then, Wrap in plastic bag to protect from scratches

ml 08 03 06 (1)

22.0

D35021

SUPPORT



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

SUPPORT

Batch: 32205

ml 08 03 06

23.0

D2856400

Abrasion Strip



Comment: Qty.: 1.2401 f(s)/Unit Total : 1.2401 f(s)

Abrasion Strip 7.10" long x2

Batch: 35900

ml 08 03 06

24.0

ALS41032225

Insert



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Insert

Batch: 100489

ml 08 03 06

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 10/22/2007 3:40:34 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT UNDER REVIEW

Job Number: 35276A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

25.0

AN960JD10

Washer



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Washer

Batch:

105442

ml 08 03 06

26.0

MS2192020

Clamp (per MIL-DTL-8783C)



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

Clamp (per MIL-DTL-8783C)

Batch:

103478

ml 08 03 06

27.0

MS27039110

Screw



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Screw

Batch:

18836

ml 08 03 06

28.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Install Ground wire Insert, then insert screw and washer

2-Install Abrasion strips as per Dwg D350-748-241 & QSI 035.

3-Install supports Using Dt8876 as per Dwg D350-748-241, Torque to 60-80 IN-LBS

ml 08 03 06 (1)

29.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

30.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-748-241

Location:

PPP Rev:

PPP 35276A

-8/3/12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Monday, 10/22/2007 3:40:34 PM

User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: X-TUBE AS 350/355 HI AFT UNDER REVIEW

Job Number: 35276A

Part Number: D350748241

Job Number:



Seq. #:

Machine Or Operation:

Description :

31.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

①
D 00/03/14

Job Completion



mi 2008/3/13

①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order: 35276A
Description: Crosstube Assembly (AS350/355 High Aft)	Part Number: D350-748-241
Inspection Dwg: D350-748-241 Rev: D	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

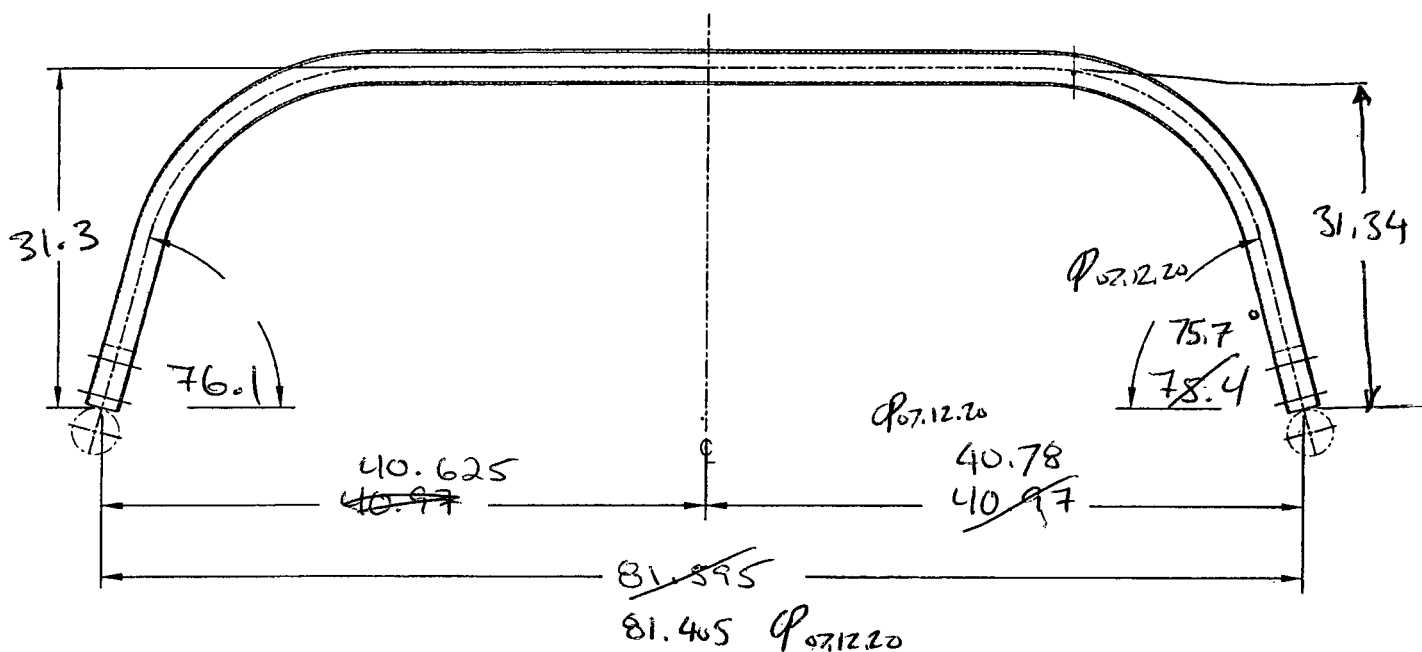
Inspection Sheet Drawing Dimension		Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.242				
	2.180	+0.005/-0.000	2.183				
	2.180	+0.005/-0.000	2.183				
	2.208	+0.005/-0.000	2.212				
	2.234	+0.005/-0.000	2.234				
	2.253	+0.005/-0.000	2.258				
	2.272	+0.005/-0.000	2.277				
	2.299	+0.005/-0.000	2.300				
	0.063	+/-0.010	.063				
	4.26	+/-0.030	4.260				
	R0.063	+/-0.010	.063				
	R0.50	+/-0.030	.500				
SIDE B	2.240	+0.005/-0.000	2.245				
	2.180	+0.005/-0.000	2.185				
	2.180	+0.005/-0.000	2.185				
	2.208	+0.005/-0.000	2.213				
	2.234	+0.005/-0.000	2.239				
	2.253	+0.005/-0.000	2.258				
	2.272	+0.005/-0.000	2.277				
	2.299	+0.005/-0.000	2.300				
	0.063	+/-0.010	.063				
	4.26	+/-0.030	4.266				
	R0.063	+/-0.010	.063				
	R0.50	+/-0.030	.500				
	122.70	+/-0.060	122.70				

Measured by: S.F.	Audited by: J.F.	Prototype Approval:	N/A
Date: 07/11/04	Date: 07/11/05	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	07.01.17	New Issue (P/O D350-748-201)	KJ/JLM	

DART AEROSPACE LTD		Work Order:	35276A
Description: Crosstube High Aft (AS350/355)		Part Number:	D350-748-201
Inspection Dwg: D350-748-241 Rev: D		Page 1 of 1	

Required Dimension	Min	Max
Height	31.22	31.48
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.54	82.06



men per
Q51112
40.65

Comments

QC15 Inspection	CP
Date	07.12.20

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	[Signature]

DART**RELEASED**

06.10.31

DESIGN 9P	DRAWN BY 9P	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED H	APPROVED H	DRAWING NO. D350-748-241	REV. D SHEET 1 OF 3
DATE 06.10.31		TITLE CROSSTUBE (AS 350/355 HI AFT)	SCALE NTS
A	06.03.31	NEW ISSUE	
B	06.06.30	ADD D6018-125 & PRIME AND PAINT	
C	06.08.14	ADD CAD PLATING	
D	06.10.31	MAG. PARTICLE AND CAD PLATE AS MFD.	

QTY	P/N	DESCRIPTION
X	D350-748-241	CROSSTUBE ASSEMBLY (AS 350/355 HI AFT)
1	D6018-125	CROSSTUBE (OR D6015-125)
2	D3502-1	SUPPORT
2	D2856-400-710	ABRASION STRIP
1	AELS-1032-225	INSERT
1	AN960JD10	WASHER
2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
1	MS27039-1-10	SCREW

D350-748-141 CROSSTUBE:

- 1) MATERIAL: MANUFACTURED FROM D6018-125 OR D6015-125
FINISHED LENGTH = 122.70±0.06
- 2) MACHINE PER MACHINING DETAIL ON PAGE 3. BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITIONS SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 3) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS
- 4) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 5) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING
- 6) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 7) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 8) INSTALL D2856-400-710 ABRASION STRIP WITH A GAP ON BOTTOM SIDE OF CROSSTUBE, CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 9) TORQUE MS21920-20 CLAMPS 60 TO 80 IN-LB
- 10) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 11) ALL DIMENSIONS ARE IN INCHES
- 12) PART IS SYMMETRIC ABOUT CENTERLINE EXCEPT FOR Ø0.297 HOLE.

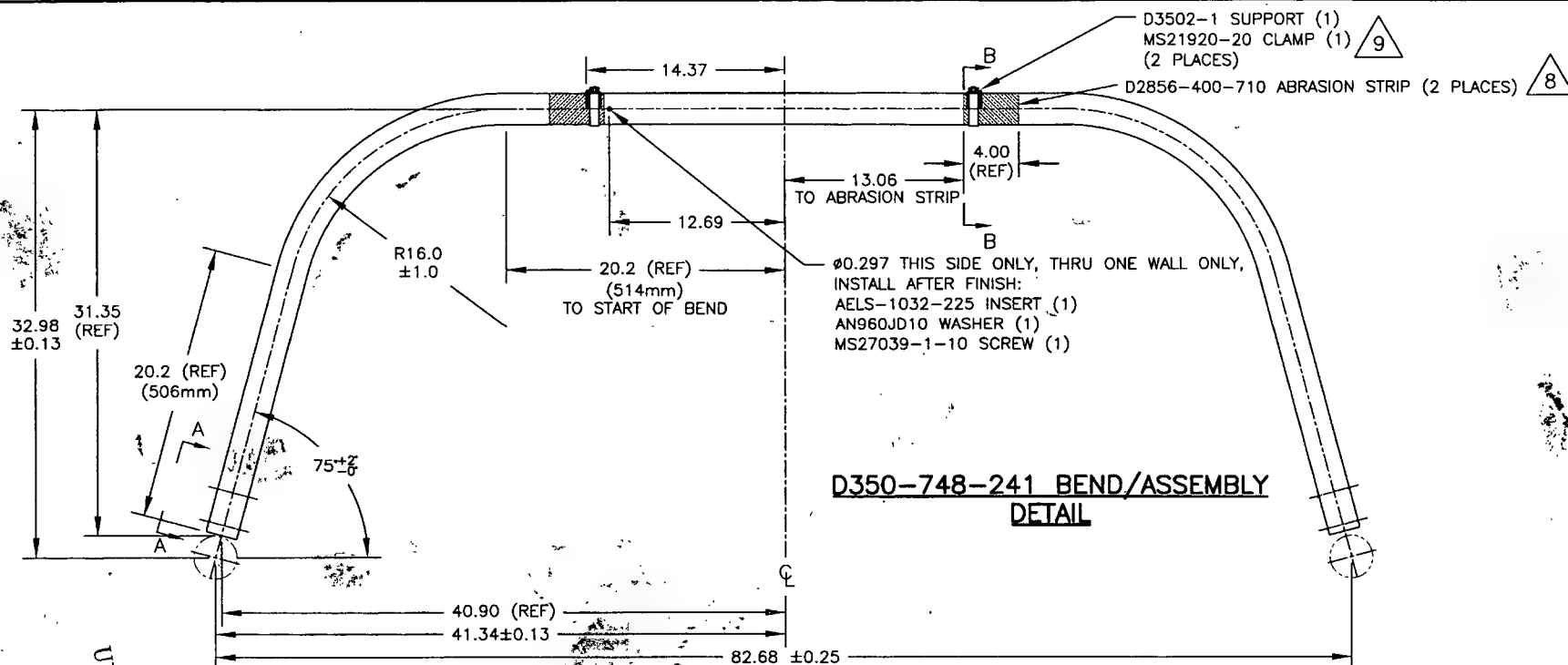
UNDER REVIEW

07.02.16

OK 07.11.22

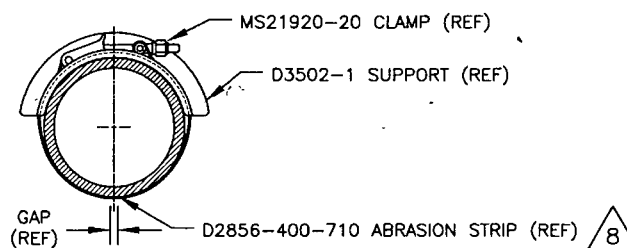
Copyright © 2006 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

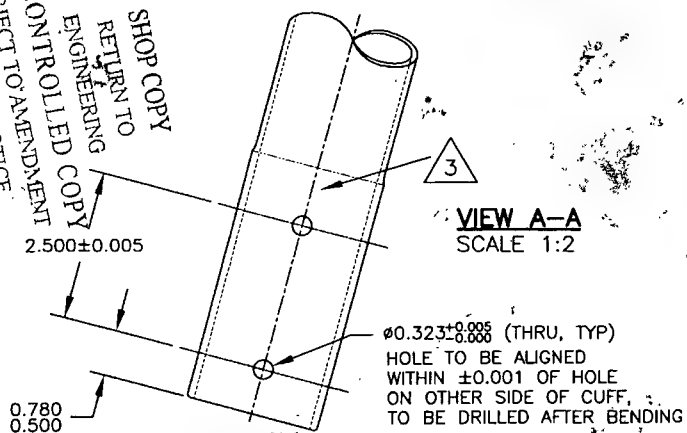


D350-748-241 BEND/ASSEMBLY DETAIL

SECTION B-B SCALE 1:2



VIEW A-A SCALE 1:2

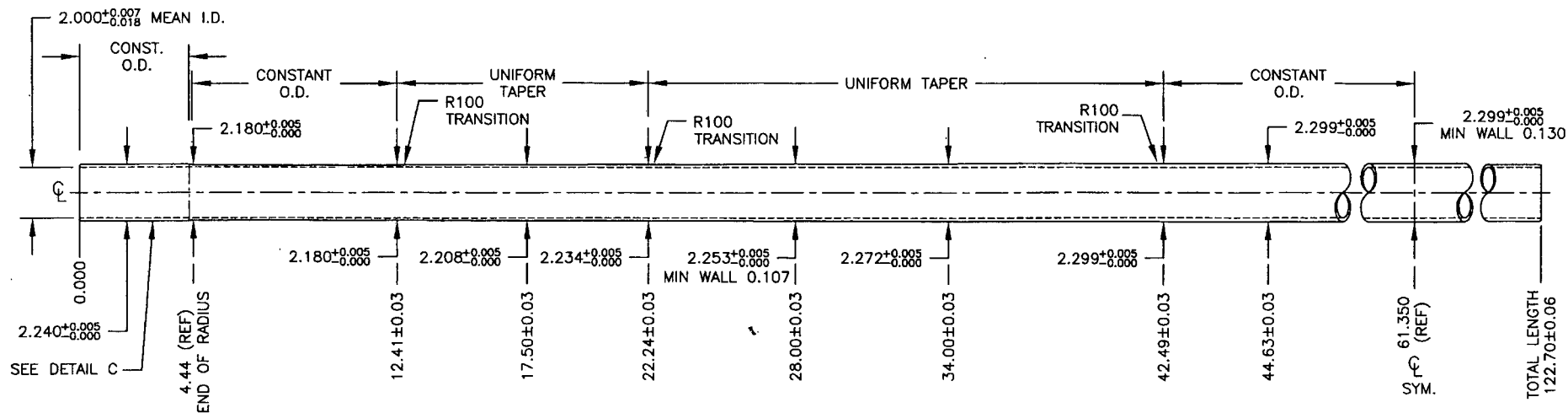


UNDER REVIEW
07.02/16/17
CUFF BEING RELEASED
OK (P. 7.11.22)
RELEASED
06.10.31

COPYRIGHT © 2006 BY DART AEROSPACE LTD.

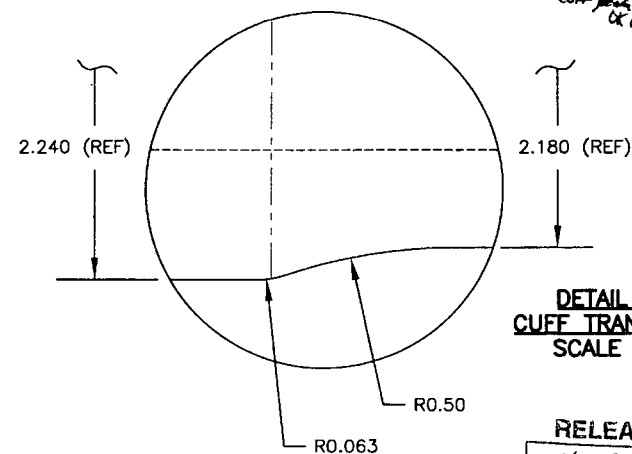
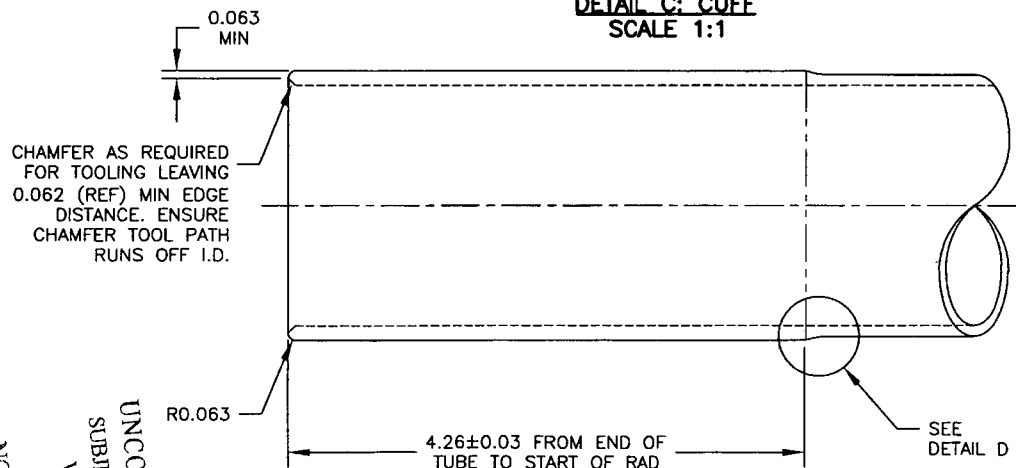
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

DESIGN	qp	DRAWN BY	qp	DART	DART AEROSPACE LTD. HARRISBURG, ONTARIO, CANADA
CHECKED	#	APPROVED	#	DRAWING NO.	REV. D
DATE	06.10.31			D350-748-241	SHEET 2 OF 3
				TITLE	SCALE
				CROSSTUBE (AS 350/355 HI AFT)	1:8



D350-748-241 MACHINING DETAIL

DETAIL C: CUFF SCALE 1:1



DETAIL D: CUFF TRANSITION SCALE 9:1

RELEASED

06.10.31

COPYRIGHT © 2000 BY DART AEROSPACE LTD.		DESIGN	q	DRAWN BY	q	DART	DART AEROSPACE LTD. HAMPSHIRE, ENGLAND, CANADA
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.		CHECKED	#	APPROVED	#	DRAWING NO.	REV. D
		DATE	06.10.31			D350-748-241	SHEET 3 OF 3
						TITLE	SCALE
						CROSSTUBE (AS 350/355 HI AFT)	1:4

NO. 35276A
WORK ORDER
SUBJECT TO AMENDMENT
WITHOUT NOTICE
UNCONTROLLED COPY
ENGINEERING
RETURN TO
SHOP COPY



VAC AERO
INTERNATIONAL INC.

RELEASE NOTE

GST No. : R105468102

OAK 92999-1

☒ HEAD OFFICE
1371 SPEERS ROAD, OAKVILLE, ONTARIO
CANADA L6L 2X5
TEL: (905) 827-4171 FAX: (905) 827-7489

☐ 2009 WYECROFT ROAD, UNIT B
OAKVILLE, ONTARIO
CANADA L6L 6J4
TEL: (905) 827-7377 FAX: (905) 827-1380

☐ QUEBEC DIVISION
7450 RUE VÉRITÉ STREET, ST. LAURENT, QUÉBEC
CANADA H4S 1C5
TEL: (514) 334-4240 FAX: (514) 334-6269

12/06/2007

MM/DD/YYYY

PAGE : 1

BILL TO: 1DAR01
DART AEROSPACE LTD.
1270 ABERDEEN ST.
HAWKESBURY, ON

SHIP TO: DART AEROSPACE LTD.
1270 ABERDEEN ST.
HAWKESBURY, ON

K6A 1K7

K6A 1K7

DATE SHIPPED	SHIP VIA	F.O.B.
12/06/2007		ORIGIN
CUSTOMER P/O No.	JOB No.	TERMS
PO00005031		COD

PART No.	DESCRIPTION	UOM	QTY ORD	QTY SHPD	TEST RESULTS
----------	-------------	-----	------------	-------------	--------------

D350-748

EA 8 8

Process Specifications: Procedure: 4353
HEAT TREATED TO 180 KSI PER AMS 2759-1D
100% HARDNESS TESTED AS PER ASTM E-18, HRC 40-45
MATERIAL: 4130

ONE EACH OF:

D350-748-141B35272A, D350-748-141B35273A,
D350-748-141B35274A, D350-748-141B35275A,
D350-748-241B35276A, D350-748-241B35277A,
D350-748-241B35278A, D350-748-241B35279A

NOTE: SAND BLAST TUBE AFTER HEAT TREAT

100% HARDNESS TESTED

8 pcs.

42/43 HRC

XR



I hereby certify that the material covered by this release note has been inspected and tested and conforms to all specifications relevant thereto in accordance with the conditions of the contract / or purchase order.

ON BEHALF OF VAC AERO INTERNATIONAL INC.

Diana Robinson
Authorized Q.C. Inspector



VACUUM BRAZING - HEAT TREATING - SPECIAL PROCESSING - FURNACE EQUIPMENT
TURBINE COMPONENT OVERHAUL - PLASMA AND OTHER COATINGS



Chris Provencal

From: David Shepherd [dshepherd@dartaero.com]
Sent: January 21, 2008 5:20 PM
To: 'Chris Provencal'
Cc: 'Mike Petsche'
Subject: RE: NCR D350-748-141/-241

Chris,

As per our discussions, your course of action as outlined below is acceptable to me.
I agree ... an NCR must be raised to prevent this from happening in the future.

David

From: Chris Provencal [mailto:cprovencal@dartaero.com]
Sent: Monday, January 21, 2008 2:36 PM
To: 'David Shepherd'
Cc: 'Mike Petsche'
Subject: NCR D350-748-141/-241

David,

RE: The xtube cuff holes on several D350-748-141/-241 were misaligned by as much as 0.040". The misalignment is between the hole pattern on the inboard and outboard side of the cuffs, ie. The dimension from the bottom of the xtube to the center hole (0.500-0.780 on dwg) is different from inboard to outboard side.

We opened the holes on the worst-case xtube with a q-drill to 0.332 diam (dwg is p-drill or 0.323). The tubes could be assembled in a complete gear. He had to tap a few bolts through, but not nothing with any large amount of effort. We will assemble each affected tube and verify them.

The non-conforming xtube is the aft xtube in the attached picture. As this is an unusual deviation, we thought it best to ask for your opinion. Is this acceptable? An NCR has been initiated to figure out why this happened.

Thanks,
-Chris

No virus found in this incoming message.
Checked by AVG Free Edition.
Version: 7.5.516 / Virus Database: 269.19.8/1235 - Release Date: 1/21/2008 9:39 AM

No virus found in this outgoing message.
Checked by AVG Free Edition.
Version: 7.5.516 / Virus Database: 269.19.8/1235 - Release Date: 1/21/2008 9:39 AM

2008-01-22

**CERTIFICATE OF
PERFORMANCE**

**CADORATH PLATING CO. LTD.
2150 LOGAN AVENUE
WINNIPEG, MANITOBA R2J-0J1**

DATE: Feb-28-2008

**CONSIGNEE TO: Dart Aerospace Ltd.
1270 Aberdeen St
Hawksbury, ON K6A 1K7**

**W/O #: 73543
INVOICE #: 38152**

**CONTRACT OR
PURCHASE ORDER # 5510**

DESCRIPTION: SKID

QTY 1

P/N # D350748241

S/N # B35276

**CADMIUM PLATE IAW AMS-QQ-P-416 TYPE 2 CLASS 1. MPI IAW
ASTM-E-1444. BAKE HEAT CHART #8776 & #8884.**

**CERTIFICATE: I certify that the items indicated here on have
been inspected and tested and conform to all specifications
and requirements detailed on the contract or purchase order.**

Approved Inspector:

William Maruszynski

